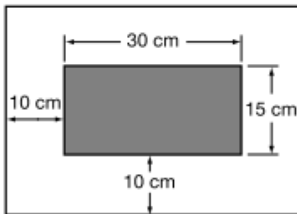


1.

A picture measures 30 cm by 15 cm. The mat around the picture is 10 cm wide as shown.

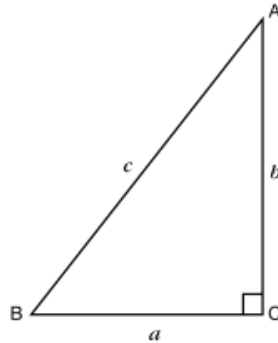


Find the **area** of the mat.

- A 450 cm<sup>2</sup>
- B 1000 cm<sup>2</sup>
- C 1200 cm<sup>2</sup>
- D 1300 cm<sup>2</sup>

2.

$\triangle ABC$  is a right-angled triangle with  $BC = a$ ,  $AC = b$  and  $AB = c$ .



Which statement is **not** true?

- F  $c > a + b$
- G  $c^2 = a^2 + b^2$
- H  $\angle C = 90^\circ$
- J  $\angle A + \angle B = 90^\circ$

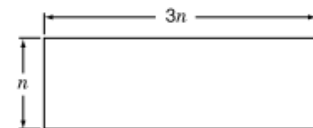
3.

The area of a square is between 5000 cm<sup>2</sup> and 7500 cm<sup>2</sup>.

Which value could be the length, in centimetres, of one side of the square?

- A 50
- B 60
- C 70
- D 80

If the perimeter of this rectangle is 120 units, what is its area in square units?

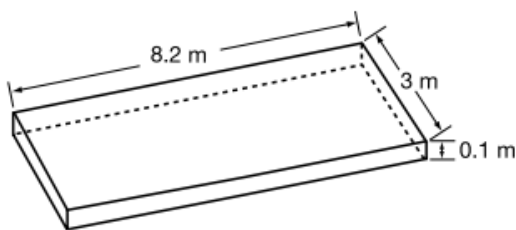


- F 675
- G 900
- H 1225
- J 2700

4.

Richard wants to buy new soil for his garden. He wants the new soil to be approximately 0.1 m deep.

The figure shows the dimensions of Richard's garden, which is a **rectangular prism**.

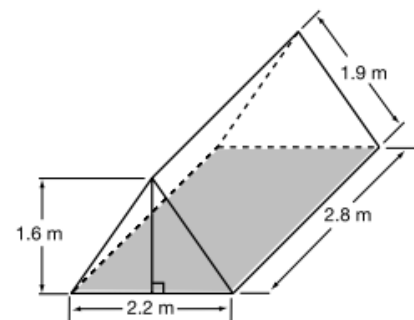


What **volume** of soil does Richard need?

- A 2.24 m<sup>3</sup>
- B 2.46 m<sup>3</sup>
- C 11.3 m<sup>3</sup>
- D 24.6 m<sup>3</sup>

5.

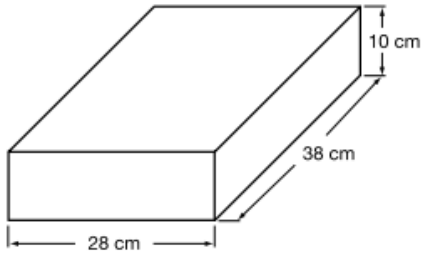
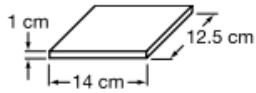
The figure below shows the dimensions of a tent.



What is the total area of the walls on the **two sides** and the **two ends**, correct to the nearest square metre?

- A 12 m<sup>2</sup>
- B 14 m<sup>2</sup>
- C 16 m<sup>2</sup>
- D 20 m<sup>2</sup>

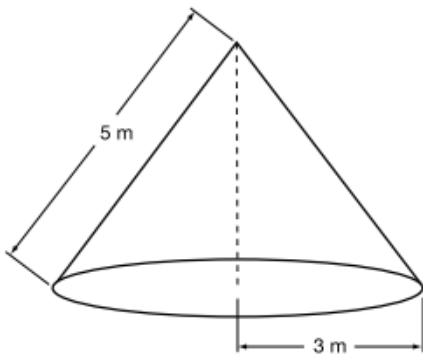
6. Elisa wants to pack CD cases into a storage box.



What is the largest number of CD cases Elisa can pack inside the covered storage box?

- a about 40
- b about 50
- c about 60
- d about 70

8. A tent has the shape of a cone. The radius of the base is 3 m, and the slant height is 5 m.



What is the approximate surface area of the tent, including the floor?

- a  $38 \text{ m}^2$
- b  $48 \text{ m}^2$
- c  $75 \text{ m}^2$
- d  $95 \text{ m}^2$

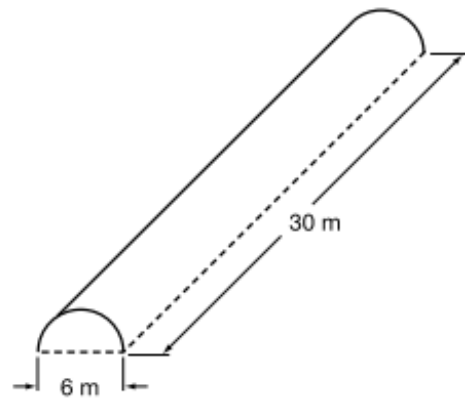
7. A basketball has a radius of 12 cm.



What is its **surface area**, correct to the nearest square centimetre?

- A  $450 \text{ cm}^2$
- B  $1810 \text{ cm}^2$
- C  $5429 \text{ cm}^2$
- D  $7238 \text{ cm}^2$

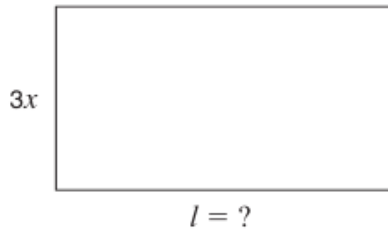
9. The figure shows a greenhouse roof in the shape of half a cylinder.



What is the approximate surface area of the curved roof?

- a  $283 \text{ m}^2$
- b  $424 \text{ m}^2$
- c  $565 \text{ m}^2$
- d  $848 \text{ m}^2$

10. The area of the rectangle shown below is  $6xy^2$  square units.



**Hint:**  $A = lw$

If the width is  $3x$  units, which expression represents the length of the rectangle?

- a  $2xy^2$  units
- b  $2y^2$  units
- c  $3xy^2$  units
- d  $3y^2$  units

12.

Maria grows several varieties of plants in a rectangular-shaped garden. She uses fencing to divide the garden into 16 squares that are each 1 m by 1 m. She also puts fencing around the perimeter of the garden.

Which of the following represents the smallest amount of fencing that Maria needs?

- a 24 m
- b 40 m
- c 42 m
- d 49 m

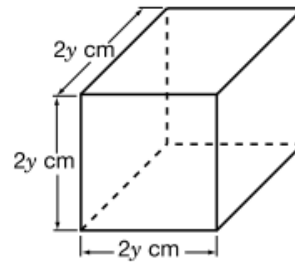
14.

If the radius of a sphere is tripled, the surface area of the sphere will increase

- a by a factor of 3.
- b by a factor of 4.
- c by a factor of 6.
- d by a factor of 9.

11.

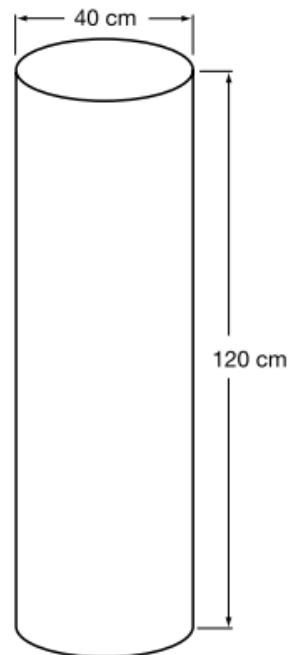
Each side of a cube is  $2y$  cm long. What is the volume of the cube?



- a  $8y^3$  cm<sup>3</sup>
- b  $6y$  cm<sup>3</sup>
- c  $2y^3$  cm<sup>3</sup>
- d  $2y$  cm<sup>3</sup>

13.

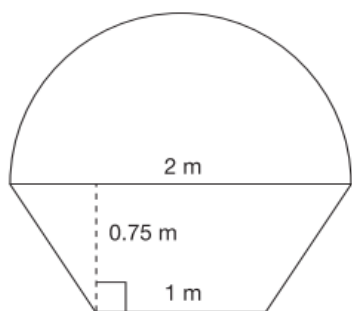
A cylindrical hot water heater has a diameter of 40 cm and a height of 120 cm.



Which of the following expressions shows the maximum volume of water that the heater can hold?

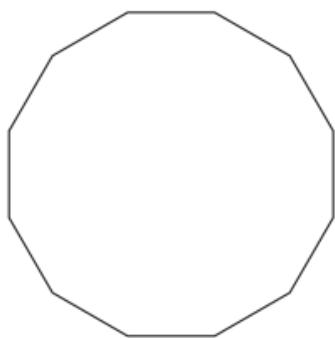
- a  $\pi \times 20^2 \times 120$  cm<sup>3</sup>
- b  $\pi \times 40^2 \times 120$  cm<sup>3</sup>
- c  $2\pi \times 20 \times 120$  cm<sup>3</sup>
- d  $2\pi \times 40 \times 120$  cm<sup>3</sup>

15. The Cutie Cupcake Company is having a sign made. The sign will be a semicircle on top of a trapezoid.



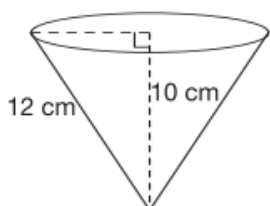
Which of the following is closest to the total area of the sign?

- a  $4.27 \text{ m}^2$
  - b  $2.70 \text{ m}^2$
  - c  $1.57 \text{ m}^2$
  - d  $1.13 \text{ m}^2$
- 
17. What is the measure, in degrees, of the sum of the interior angles of a 12-sided regular polygon?



- a  $2160^\circ$
  - b  $1800^\circ$
  - c  $1500^\circ$
  - d  $1080^\circ$
- 

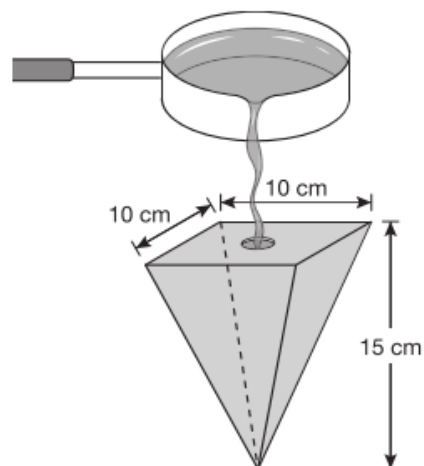
18. Zach measures the slant height of a cone-shaped cup and finds that it is 12 cm. The height is 10 cm.



Determine the volume of water in the cup if Zach fills it to the top.  
Show your work.

16.

The mould shown below is used to make a candle in the shape of a square-based pyramid.



What is the volume of the mould?

- a  $1500 \text{ cm}^3$
- b  $500 \text{ cm}^3$
- c  $400 \text{ cm}^3$
- d  $35 \text{ cm}^3$